

WHAT IS CLAIMED IS:

1. Isolated fungal hemolysin or active fragments thereof obtained from *Stachybotrys chartarum*.
2. Antibodies to fungal hemolysin or active fragments thereof.
3. A method for determining if a mammal has been exposed to a hemolysin-producing fungus comprising contacting a sample from said mammal with labeled antibodies to fungal hemolysin or active fragments thereof and detecting the label to determine the presence of antigens to fungal hemolysin.
4. The method according to claim 3 wherein the label is selected from the group consisting of enzyme, radioactive, chemiluminescent, and fluorescent labels.
5. The method according to claim 3 wherein the fungus is selected from the group consisting of *Stachybotrys chartarum*, *Aspergillus fumigatus*, *Candida albicans*, and *Penicillium chrysogenum*.
6. A method for isolating fungal hemolysin comprising culturing a strain of fungus on a synthetic medium, removing cells and debris from the culture to recover supernatant, and isolating homiletical active fractions.
7. The method according to claim 6 wherein the strain of fungus is cultured on tryptic soy broth.
8. The method according to claim 6 wherein the strain of fungus is *Stachybotrys chartarum*.
9. The method according to claim 6 wherein the

homiletical active fractions are isolated by gel filtration.

10. A composition for treating cancer cells comprising fungal hemolysin conjugated to an antibody for the cancer cell.

11. A vaccine to protect against infection by hemolysin producing fungi comprising an antigen or an active fragment, derivative, analog, or variant thereof to fungal hemolysin and a pharmaceutically acceptable carrier.

12. The vaccine according to claim 11 wherein the hemolysin producing fungi are selected from the group consisting of *Stachybotrys chartarum*, *Aspergillus fumigatus*, *Candida albicans*, and *Penicillium chrysogenum*.

13. A method for altering immune function in a mammal in need thereof comprising administering to said mammal an effective amount of a fungal hemolysin to alter immune function.

14. The method according to claim 13 wherein the fungal hemoglobin is obtained from a fungus selected from the group consisting of *Stachybotrys chartarum*, *Aspergillus fumigatus*, *Candida albicans*, and *Penicillium chrysogenum*.

15. A method for treating cancer comprising conjugating a fungal hemolysin to an antibody to the cancer cell and administering an effective amount of the conjugate to a patient in need thereof.

16. A composition for administration across the blood-brain barrier comprising a combination of a pore-forming

